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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,204	01/27/2005	William S.C. Chang	0321.67638	6603
24978	7590	03/16/2006	EXAMINER	
GREER, BURNS & CRAIN 300 S WACKER DR 25TH FLOOR CHICAGO, IL 60606			RAHLL, JERRY T	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/519,204	Applicant(s) CHANG ET AL.	
	Examiner Jerry T. Rahll	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 8-17 is/are rejected.
- 7) ☒ Claim(s) 3-7 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/17/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 17 December 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. The drawings submitted have been reviewed and determined to facilitate understanding of the invention. The drawings are accepted as submitted.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,892,857 to McCallion.
5. Regarding Claim 1, McCallion describes an apparatus for optical modulation including an optical waveguide (30) and a microwave guide (60) with an electro-absorptive material (see Column 1 Lines 52-64) located in an evanescent region (see Column 5 Lines 15-20) occupied by the optical waves evanescent tail (see Figures 1a-1c and 5a-7b).
6. Regarding Claim 13, McCallion describes a method of guiding an optical wave having an evanescent tail in an optical waveguide and applying a modulation voltage to the evanescent tail (see Column 4 Line 51-Column 5 Line 34 and Column 8 Line 35-Column 9 Line 4).

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7. Regarding Claim 14, McCallion describes positioning electro-absorptive material (60) in the evanescent tail and applying the modulation voltage to the electro-absorptive material (see Column 4 Line 51-Column 5 Line 34 and Column 8 Line 35-Column 9 Line 4).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 8-12 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCallion. McCallion describe the apparatus and method discussed above.

10. Regarding Claims 8-12, McCallion does not specifically describe the electro-absorptive material as those listed in the claims. However such materials are well-known electro-optic materials that effect light absorption. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use such materials in the modulator of McCallion, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. The motivation for doing so would have been to utilize the advantageous electro-optic properties of such materials.

11. Regarding Claims 15-16, McCallion does not specifically describe the modulation voltage as analog or digital. However, electro-optic modulators are well-known in the art to use both analog and digital modulation voltage. It would have been obvious to one of ordinary skill in the art at the time of invention to use either analog or digital voltage modulation in the method

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described by McCallion. The motivation doing so would have been to match the modulation voltage to whatever control device may be desired for controlling the modulation.

12. Regarding Claim 17, McCallion does not specifically describe a direct coupling between a single mode fiber optical wave into the waveguide. However, it is well-known in the art to transmit optical waves via single optical fibers and then couple such fibers to signal processing components, such as modulators. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to directly couple a single mode fiber optical wave into the waveguide of McCallion. The motivation for doing so would be to allow for transmission between signal processing components.

13. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCallion as applied to claim 1 above, and further in view of US Patent No. 5,082,342 to Wight et al.

14. McCallion does not specifically describe the optical waveguide having the layer setup as describe in present Claim 2. Wight et al. describes an optical waveguide device having a substrate (156), an N-contact layer (166), an upper semiconducting cladding layer (164) between the substrate and N-contact layer, a semiconducting core layer (162) between the substrate and upper cladding layer, a lower cladding layer (160) between the substrate and core layer, where the N-contact layer and upper cladding layer are etched to form a ridge (see Figure 13 and Column 19 Line 64-Column 20 Line 56). It would have been obvious to one of ordinary skill in the art at the time of invention to use the optical waveguide of Wight et al. in the modulator apparatus of McCallion. The motivation for doing so would have been to modulate signals in a planar optical circuit.

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Allowable Subject Matter

15. Claims 3-7 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

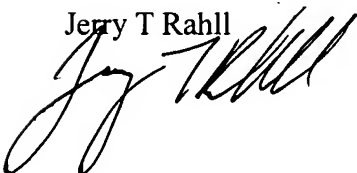
16. Claims 3-7 describe the microwave waveguide including a P-contact layer with a P-contact disposed on the electro-absorptive material. Claim 18 describes an optical confinement factor of the electro-absorptive material between 1% and 5%. This is subject matter not described or reasonably suggested, in conjunction with the further limitations of the present claims, by the prior art of record.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry T. Rahll whose telephone number is (571) 272-2356. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jerry T Rahll




MICHELLE CONNELLY-CUSHWA
PRIMARY EXAMINER
3/13/06